

CLAIMS

What is claimed is:

Sub A system using derived voice over data technology to provide analog voice telephony to a client premise, comprising:

5 a derived voice over data termination device located outside of the client premise, said derived voice over data termination device configured to convert between base band signals and derived voice over data signals utilizing derived voice over data technology; and

10 a connection between the client premise and the derived voice over data termination device,
wherein the connection between the client premise and the derived voice over data termination device carries analog frequencies.

15 2. The system of claim 1, wherein said connection between the client premise and the derived voice over data termination device is powered by said derived voice over data termination device.

20 3. The system of claim 1, wherein said connection between the client premise and the derived voice over data termination device is over a single metal wire pair.

4. The system of claim 1, further comprising a digital subscriber line access multiplexer coupled between the derived voice over data termination device and one of an ATM switch, a frame relay switch, and a router.

5. The system of claim 1, wherein the derived voice over data termination device is connected to at least one port of the digital subscriber line access multiplexer, each of said at least one port is selected from the group consisting of xDSL, DS1, DS3,
5 OC-3, OC-12, Ethernet, E3, E1, and OC48.

6. The system of claim 5, wherein xDSL includes ADSL, SDSL, VDSL, HDSL, and RADSL.

7. The system of claim 1, wherein the derived voice over data termination device is selected from the group consisting of voice over ATM, voice over data network, voice over IP, and voice over frame relay termination devices.

8. The system of claim 1, wherein the derived voice over data termination
15 device is located in a wire center.

9. The system of claim 1, wherein the derived voice over data termination device is adapted to receive and generate from base band voice signals packetized digital
voice data.

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Cont

Sub A²

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1. The first part of the paper is devoted to the study of the properties of the function $f(x)$ defined by the equation $f(x) = \int_0^x f(t) dt$. It is shown that the function $f(x)$ is continuous and differentiable on the interval $[0, 1]$. The derivative of $f(x)$ is equal to $f(x)$ itself. This implies that $f(x)$ is an exponential function. The initial condition $f(0) = 1$ determines the function uniquely as $f(x) = e^x$.

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15. The system of claim 1, wherein the connection between the client premise and the derived voice over data termination device includes a main distribution frame coupled between the derived voice over data termination device and the client premise.

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16. The system of claim 1, wherein the derived voice over data termination device is a voice over data termination device adapted to support transmission to one of a multiplexer and a switch, and wherein the voice over data termination device is configured to support transmission utilizing xDSL, DS1, DS3, OC-3, OC-12, Ethernet, E3, E1, and OC48.

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17. A derived voice over data packet network, comprising:
a derived voice over data termination device located in a wire center and coupled to a client premise over a single metal wire pair; and
a derived voice over data switch coupled to the derived voice over data termination device and to a public switched telephone network.

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18. The derived voice over data packet network of claim 17, wherein the derived voice over data switch is coupled to the public switched telephone network via a voice gateway and a voice switch.

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19. The derived voice over data packet network of claim 17, further comprising a regional switching center, the regional switching center includes the derived voice over data switch.

5 20. The derived voice over data packet network of claim 17, further comprising a central office, the central office including the derived voice over data termination device and a digital subscriber line access multiplexer coupled between the derived voice over data termination device and the derived voice over data switch.

10 21. A method for providing base band voice telephony to a client telephone, comprising:

providing a derived voice over data termination device in a wire center;

providing a base-band analog connection between the client telephone and the derived voice over data termination device;

15 transmitting base-band analog voice signals between the client telephone and the derived voice over data termination device in the wire center; and

transmitting derived voice over data signals between the derived voice over data termination device and a voice gateway connected to a public switched telephone network.

20 22. The method of claim 21, wherein said base-band analog connection between the client telephone and the derived voice over data termination device is over a single metal wire pair.

23. The method of claim 22, wherein said base-band analog connection between the client telephone and the derived voice over data termination device is via a splitter, said method further comprising transmitting digital data signals between a client premise equipment and the splitter over said single metal wire pair.

24. The method of claim 23, further comprising transmitting digital data signals between the splitter and a digital subscriber line access multiplexer.